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Ideational Behavior of Monkeys and Apes: Robert M. Yerkes, Psychological Laboratory, Harvard University. The general conclusions which may be deduced are that the ape exhibits various forms of ideational behavior, whereas the reactive tendencies of monkeys are inferior in type.

The Osmotic Pressure and Lowering of the Freezing-Point of Mixtures of Salts with one another and with Non-Electrolytes in Aqueous Solutions: William D. Harkins, R. E. Hall and W. A. Roberts, Kent Chemical Laboratory, University of Chicago. The general result obtained with mixtures already investigated is that the lowering of the freezing-point of the mixture is very nearly that which would be calculated on the basis that each salt produces a lowering of the freezing-point proportional to its own concentration and to the mol-number which it has when present alone in a solution of salt concentration.

Certain General Properties of Functions: Henry Blumberg, Department of Mathematics, University of Nebraska.

Sphenacodon Marsh, A Permocarboniferous Theromorph Reptile from New Mexico: Samuel W. Williston, Walker Museum, University of Chicago. Reconstruction of a fossil reptile found in a bone bed from which some collections were made as early as thirty-eight years ago, but which seems to have been almost forgotten until recently.

On Volume in Biology: Lawrence J. Henderson, Chemical Laboratory of Harvard College. When equilibrium has been established in a heterogeneous system (capillary and gravitational phenomena being absent) the volume of the phases is not relevant to the state of the system, but in nearly all physiological changes the regulation of volume is of great importance. EDWIN BIDWELL WILSON

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NOTES ON METEOROLOGY AND CLIMATOLOGY

TWO POPULAR WEATHER BOOKS

THE scientific book on meteorology, with its numerous tables, plates and figures is too ex-

pensive and too bulky, not to mention too technical for light reading. There are three standard American meteorological treatises. Professor W. M. Davis's "Elementary Meteorology"¹ is finely written and illustrated, but on account of advances in meteorology in the past twenty years it needs to be supplemented by Professor W. I. Milham's "Meteorology"² or by Dr. W. L. Moore's "Descriptive Meteorology."³ There is ample room for the small, easily read books on instruments,⁴ weather processes, and forecasting. Two such books deserve particular mention: "Our Own Weather," by Edwin C. Martin,⁵ and "Reading the Weather," by T. Morris Longstreth.⁶ The first is a carefully written, lucid account of weather processes. After a discussion of the general character and circulation of the atmosphere, the author takes as his main theme the cyclones and anticyclones of the United States and their secondary phenomena. At the end is a chapter on weather signs and superstitions. Rarely, there are weak spots. The cause of the deflection of the wind by the rotation of the earth is not "that a body of air travelling from the equator toward the poles carries with it an eastward speed acquired at the equator and exceeding always that which it finds in the parts to which it goes" (p. 23). When any body on the earth's surface is set in motion it is deflected by the disturbance of the equilibrium between gravity and the centrifugal tendency.⁷ Elsewhere (p. 33) the author says that the stop in temperature fall with increase in altitude, and the reduction in wind velocity "above the seven-

¹ Boston, 1894, 4to, 355 pp., 106 figs., 6 charts.

² New York, 1912, 4to, 549 pp., 157 illustrations, 50 charts.

³ New York, 1910, 4to, 344 pp., 81 figs., 45 charts.

⁴ Cf. "Weather and Weather Instruments." Taylor Instrument Companies, Rochester, 1908, 8vo, 175 pp.

⁵ New York, 1913, 8vo, 281 pp., 8 cloud plates, 8 maps.

⁶ Outing Series 43, 1915, 12mo, 8 cloud plates.

⁷ See Wm. Ferrel, "A Popular Treatise on the Winds," New York, 1889, pp. 42-88; or Davis, *op. cit.*, pp. 101 et seq.

mile level are thought to be due to as sudden a change in the constitution of the air itself, to especially a large loss in nitrogen and oxygen and an accession of hydrogen." So far as is known there is no sudden change in the air composition at this or any other level.⁸ On the other hand, the author is to be credited with keeping constantly before the reader such important points as that warm air does not rise of itself, but, as he states concerning thunderstorm formation (p. 242):

It is mainly under the atmospheric movements set up by cyclones that the bodies of cold air descend and begin to root out the bodies of hot air with the abruptness that makes thunderstorms.

Also, the precipitation of atmospheric moisture by cooling due to internal expansion of rising air is well emphasized. On both these points, Mr. Longstreth gives false impressions.

"Reading the Weather," is for those who want to know simply how to forecast the weather either with or without instruments. It is a lively account of keen personal observations of weather signs, set in a brief and mainly accurate explanation of weather processes. The central theme is "sky signs for campers." These the author expounds under the heads clouds, temperatures, rain and snow, dew and frost, thunderstorm, tornado, hurricane, cloudburst and halo. For the particular benefit of the commuter, a chapter on forecasting with a barometer follows. At the end of the book is a good account of the seasons, the Weather Bureau, and weather proverbs. Finally, a summary of all the prognostics previously described adds greatly to the value of the book for reference. On account of limited scope some of the physical explanations are made too brief for accuracy. Thus the definitions of anticyclone and cyclone are hardly scientific:

⁸ See table and diagram pp. 46-47 in A. Wegener: "Thermodynamik der Atmosphäre," Leipzig, 1911. The results of analyses of air samples taken at 9 km. altitude, 1910 to 1912, as compared with the earth's surface, indicate a reduction of about 6 per cent. in the volume of carbon dioxide, and an increase of perhaps 50 per cent. in the lightest gases: see *Scientific American Supp.*, December 23, 1916, p. 414.

The anticyclone (cyclone) is an accumulation of air that has become colder (warmer) than the air surrounding it (pp. 20 and 44).

The author, himself, shows the limitations of these definitions when speaking of summer temperatures:

The clear skies of the preceding anticyclone had permitted the land to warm up very fast under the midsummer sun, and the clouds of the cyclone, by cutting off the supply, had made a relative chill (p. 89).

Although the book was written largely on the northeastern United States, its value is not by any means limited to this section of the country.

DR. JULIUS VON HANN⁹

WITH the passing of 1915, fifty years have elapsed during which Julius von Hann has edited the *Meteorologische Zeitschrift*. Dr. Hann edited the *Zeitschrift der Oesterreichischen Gesellschaft für Meteorologie* with C. Jelinek from its establishment in 1866 until 1876; and, after his death, alone to the year 1885. On merging it with the German Meteorological Society's *Meteorologischen Zeitschrift* under the title of the latter, he pursued the editorship in common with Köppen from 1886 to 1891, with Hellman, 1892 to 1907 and since then with Süring.

This 50-year editorial jubilee in connection with a scientific magazine is unique. Furthermore, never has there been an editor who even made so many contributions to his scientific magazine as he. No fewer than 134 extensive articles, 1123 smaller contributions, 166 reviews and numerous unsigned articles, have come from him. In addition he has written many monographs, and he has published what are now the most exhaustive and authoritative treatises on climatology and meteorology.¹⁰

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⁹ Taken mostly from the frontispiece by Hellmann, Köppen, and Süring, *Meteorologische Zeitschrift*, January, 1916, Vol. 33.

¹⁰ Hann's "Handbuch der Klimatologie," third ed., 1908-1911, 3 vols., 8vo, 1,533 pp., 41 figs. "Lehrbuch der Meteorologie," third ed., 1914-1915, with Dr. Süring in collaboration, 4to, 847 pp., 28 pl., 4 tables, 108 illustrations.